

CLAIMS

1. A monolithic photodetector including a photodiode, a precharge MOS transistor, a control MOS transistor, a read MOS transistor, and a transfer MOS transistor, the photodiode and the transfer transistor being formed in a same substrate of a first conductivity type, wherein the photodiode includes a first region of the second conductivity type formed under a second region of the first conductivity type more heavily doped than the first region, and above a third region of the first conductivity type more heavily doped than the substrate, the first region being the source of the second conductivity type of the transfer transistor, the second and third regions being connected to the substrate and being at a fixed voltage.
2. The photodetector of claim 1, further including a well of the first conductivity type, more heavily doped than the substrate, in which the first region is formed.
3. The photodetector of claim 1, wherein the first conductivity type is type P and the second conductivity type is type N.
4. The photodetector of claim 2, wherein the substrate, the well, and the second and third regions are maintained to a reference voltage of the circuit.
5. The photodetector of claim 1, including chains of photodiodes connected together by transfer transistors.
6. The photodetector of claim 1, wherein the third region has a thickness such that it is an integral part of the space charge area between the first and third regions.



CLAIMS AS CURRENTLY PENDING
(AS OF 11/7/02)

1. A monolithic photodetector including a photodiode, a precharge MOS transistor, a control MOS transistor, a read MOS transistor, and a transfer MOS transistor, the photodiode and the transfer transistor being formed in a same substrate of a first conductivity type, wherein the photodiode includes a first region of the second conductivity type formed under a second region of the first conductivity type more heavily doped than the first region, and above a third region of the first conductivity type more heavily doped than the substrate, the first region being the source of the second conductivity type of the transfer transistor, the second and third regions being connected to the substrate and being at a fixed voltage.

2. The photodetector of claim 1, further including a well of the first conductivity type, more heavily doped than the substrate, in which the first region is formed.

3. The photodetector of claim 1, wherein the first conductivity type is type P and the second conductivity type is type N.

4. The photodetector of claim 2, wherein the substrate, the well, and the second and third regions are maintained to a reference voltage of the circuit.

5. The photodetector of claim 1, including chains of photodiodes connected together by transfer transistors.

6. The photodetector of claim 1, wherein the third region has a thickness such that it is an integral part of the space charge area between the first and third regions.